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FINAL SAMPLING AND ANALYSIS PLAN AND QUALITY ASSURANCE PROJECT PLAN REVISION 1 AND HEALTH AND SAFETY PLAN T-56 AND HANGAR 1000 SITES WITH TRANSMITTAL NAS JACKSONVILLE FL
4/23/1999
TETRA TECH

N0195.3.1.2

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April 23, 1999

Project Number N0195

Commanding Officer
Department of the Navy
SOUTHNAVFACENGCOM
ATTN: Maxie Kiesler
Remedial Project Manager
2155 Eagle Drive
North Charleston, South Carolina 29406

Reference: Clean Contract No. N62467-94-D-0888
Contract Task Order No. 0095

Subject: Final Sampling and Analysis Plan and Quality Assurance Project Plan, Revision 1, and Health and Safety Plan
T-56 and Hangar 1000 Sites
NAS Jacksonville, Jacksonville, Florida

Dear Mr. Kiesler:

Tetra Tech NUS (TtNUS) is pleased to submit the final copies of Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP) and the Health and Safety Plan (HASP) for the referenced CTO. Please sign each copy of the QAPP and forward four signed copies of it to Jane Beason and return one signed copy to us. The remaining copy and the copy of the SAP and HASP are for your records. Appendix B has not been included in the QAPP as it is a standard document for our company and is maintained in each field vehicle. If you desire to see a copy of this document, please advise us. We will gladly submit a copy for your review. If you have any questions regarding the enclosed material, or if I can be of assistance in any way, please contact me at (904) 281-0400.

Very truly yours,

Gregory S. Roof, P.E.
Task Order Manager

Enclosures

cc: Ms. J. Beason (w/ three copies of HASP and SAP)
Mr. M. Perry (w/ one copy of HASP, QAPP and SAP for PMO files)
Project Office File (w/ one copy of HASP, QAPP and SAP for PMO files)

N0195-3.1.2

0005

Rev. 1
4/28/99

SAMPLING AND ANALYSIS PLAN HANGAR 1000 AND T-56 ENGINE WASH AREA

Naval Air Station Jacksonville
Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command
Contract Number N62467-94-D-0888
Contract Task Order CTO-0095

APRIL 1999

Rev. 1
04/28/99

SAMPLING AND ANALYSIS PLAN
HANGAR 1000 AND T-56 ENGINE WASH AREA

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

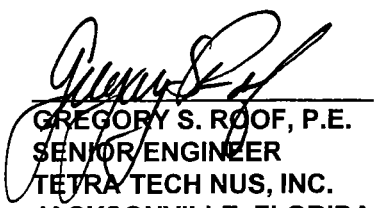
Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
Foster Plaza 7
Pittsburgh, Pennsylvania 15220

CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0095

APRIL 1999

PREPARED UNDER THE SUPERVISION OF:



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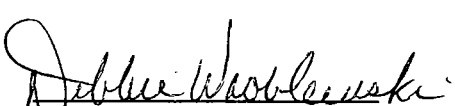

DEBBIE WROBLEWSKI
PROGRAM MANAGER
TETRA TECH NUS, INC.
PITTSBURGH, PENNSYLVANIA

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1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) has prepared this Sampling and Analysis Plan (SAP) for the completion of soil and groundwater assessment activities, quarterly monitoring and submittal of the required reports for Hangar 1000 and the T-56 Engine Wash Area (T-56) located on Naval Air Station Jacksonville (NAS JAX). The site information and scope of work contained in this SAP is based information from the "Application for Closure Permit, T-56 Wash Area and Hangar 1000" prepared by HRP/Spectrum (HRP), dated September 1998 and revised February 1999 (Closure Permit Application). This SAP was prepared for the U.S. Navy (Navy) Southern Division (SouthDiv) Naval Facilities Engineering Command (NAVFACENGCOM) under Contract Task Order (CTO) 0095, for the Comprehensive Long-term Environmental Action Navy (CLEAN III) Contract Number N62467-94-D-0888.

The SAP provides the history concerning Hangar 1000 and T-56. It will also establish the procedures for performing field activities associated with collecting groundwater samples from previously installed monitoring wells near Hangar 1000 and T-56, as well as soil and sediment sampling from a settling basin associated with T-56. Data collected during the groundwater monitoring at T-56 will be evaluated to determine what impact, if any, T-56 has had on the local groundwater. Groundwater sampling from the Hangar 1000 area will be used to prepare quarterly monitoring reports.

1.1 GENERAL SITE LOCATION

NAS JAX is located in Jacksonville, Duval County, Florida, and is bounded to the west by U.S. Highway 17 and to the east by the St. Johns River. Hangar 1000 and T-56 are located slightly southwest of John Towers Field on NAS JAX along the northern side of Yorktown Avenue. The T-56 site consists of the aircraft apron located to the north, east and west of Hangar 1000. A base location map that shows the general location of Hangar 1000 and T-56 sites is provided as **Figure 1-1.** A more detailed map depicting the Hangar 1000 area is included on the site location map, presented as **Figure 1-2.**

1.2 OBJECTIVE

The work included in this task order is divided into three tasks. The objective as described in the Closure Permit Application is listed below.

- T-56 Contaminated Soil and Sediment Investigation: To determine if waste water, which flowed over the unpaved areas and into the drainage basin, has impacted the surficial soils in this area, and to determine if sediments in the storm water drainage basin have been impacted.

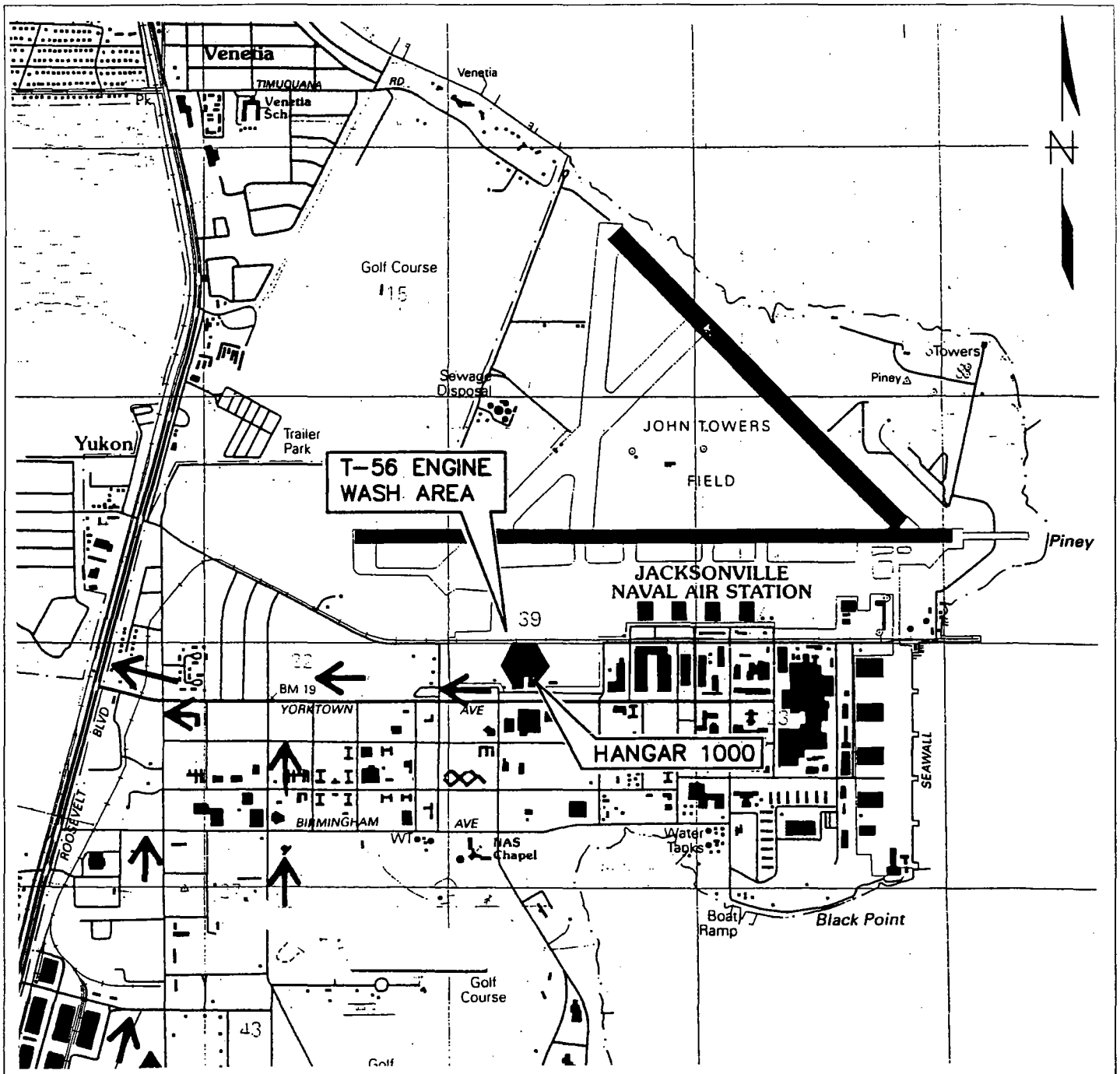
SOURCE: MAP OF JACKSONVILLE, DUVAL COUNTY, FLORIDA PUBLISHED IN 1998 BY DOLPH MAP CO., INC.

DRAWN BY GSR DATE 3/12/99			CONTRACT NO. N62467-94-D-0888
CHECKED BY DATE			APPROVED BY DATE
COST/SCHED-AREA			APPROVED BY DATE
APPROXIMATE SCALE 1 IN = 4,000 FT		DRAWING NO. CT095.DWG	REV. 0

DEPARTMENT OF THE NAVY ★ SOUTHERN DIV FACILITIES ENGINEERING COMD ★

FIGURE 1-1
BASE LOCATION MAP

HANGAR 1000 AND T-56 ENGINE WASH AREA
NAS JACKSONVILLE
JACKSONVILLE, FLORIDA



SOURCE: FIGURE B-1, SITE PLAN AND TRAFFIC PATTERNS, NAVAL AIR STATION - JACKSONVILLE, JACKSONVILLE, FLORIDA, FROM THE " APPLICATION FOR CLOSURE PERMIT, T-56 ENGINEWASH AREA, HANGAR 1000, AND DISEASE VECTOR ECOLOGY AND CONTROL CENTER - BUILDING 937, DATED SEPTEMBER 1998, FRP ASSOCIATES, INC.

DRAWN BY: GSR — DATE: 3/12/99		FIGURE 1-2 SITE LOCATION MAP HANGAR 1000 AND T-56 ENGINE WASH AREA NAS JACKSONVILLE JACKSONVILLE, FLORIDA	CONTRACT NO.: N62467-94-D-0888
CHECKED BY: — DATE:			APPROVED BY: — DATE:
COST/SCHED-AREA			APPROVED BY: — DATE:
SCALE: 1 IN = 2000 FT			DRAWING NO.: CTO95.DWG — REV.: 0

- T-56 Groundwater Monitoring: To determine what impact, if any, T-56 has had on the local groundwater.
- Hangar 1000 Quarterly Monitoring: To meet the requirements of the Closure Permit Application and to determine the mobility of the contaminant plume and if there are any other previously undetected sources of contamination at the site.

The data collected during the above tasks will be used to prepare monitoring reports and to evaluate the need for continued monitoring or remedial action at the facility.

2.0 SITE DESCRIPTION

The Hangar 1000 regulated unit located on NAS JAX consisted of two underground storage tanks (USTs), which previously received waste solvents and other substances from a wash rack, manhole and other operations which were performed inside Hangar 1000.

The T-56 Engine Wash Area (T-56) consists of the aircraft apron located north, east and west of Hangar 1000. Maintenance personnel previously used this area to wash T-56 engine compressors from the P-3 aircraft. Waste wash water from this process was discharged into the base storm water system through gravity flow.

3.0 SITE HISTORY

The Hangar 1000 regulated unit consisted of two USTs (Tank A and Tank B) which were operated from the late 1960s or early 1970s until they were closed in approximately 1993. Tank A was a 750-gallon concrete tank used as a solvent and water separator. Effluent from this unit was discharged through a pipe to the nearby storm sewer system. Tank B was a 2,000-gallon steel UST, which received solvent overflow from Tank A, and waste oils and solvents discharged from other operations at the facility.

In December 1993, a closure plan for this unit was submitted to and approved by the Florida Department of Environmental Protection (FDEP). Tanks A and B and the associated piping system were removed in March 1994. No evidence of soil contamination was detected in the tank excavations. Quarterly sampling performed in 1994 and 1995 after the tank closure activities indicated that 1,1-dichlorethene (1,1-DCE) was present in the groundwater above risk-based concentrations. Due to the presence of the 1,1-DCE, the Closure Permit Application required groundwater beneath the Hangar 1000 area to be sampled quarterly using eight existing monitoring wells.

As reported above, the T-56 site was previously an engine wash area, which operated from approximately 1981 until 1996. Normal operations involved cleaning compressors from P-3 aircraft using water. The resulting wastewater was then discharged to the base storm water system via gravity flow. In May 1996, the wastewater from T-56 was analyzed and determined to contain elevated levels of cadmium. The cadmium concentrations exhibited by the wastewater were in excess of the Resource Conservation and Recovery Act (RCRA) hazardous levels. After receiving the results of that testing, the cleaning protocols were revised so that future wastewater was containerized and disposed of as D006 hazardous waste. Due to the earlier process, the Closure Permit Application required that the settling basin associated with T-56 undergo soil and sediment sampling, and groundwater in the area be sampled quarterly.

4.0 SCOPE OF PROPOSED ASSESSMENTS AND MONITORING

The proposed scope of work for this CTO is as follows:

- T-56 Soil and Sediment Sampling: This activity will include a single round of sampling to include the collection of four soil samples from the unpaved area between the concrete apron and the drainage basin. Three sediment samples will also be collected from the drainage basin. The soil/sediment samples will be collected from the upper six inches of material at each location. The resulting samples will be analyzed for the presence of the 17 metals which appear in the RCRA Appendix IX list.

- T-56 Groundwater Detection Monitoring: This activity will include four quarterly replicate groundwater sampling events from two existing wells on the T-56 site. The sampling events will be completed in accordance with the United States Environmental Protection Agency's (EPA's) guidance on "Statistic Analysis of Ground-water Monitoring Data at RCRA Facilities" dated April 1989. Each replicate sampling event will include four specific sampling activities. The resulting groundwater samples will be analyzed for the presence of the 17 metals which appear in the RCRA Appendix IX list.

- Hangar 1000 Quarterly Groundwater Compliance Sampling: This activity will include four quarterly groundwater compliance sampling events from eight existing on-site monitoring wells. Samples collected during these sampling events will be analyzed for the constituents included in **Table 4-1.** A confirmatory sample from the point of compliance well will be analyzed for the volatile organics, and semi-volatile organics listed in **Table 4-1** and 40 CFR 264 Appendix IX metals.

This section describes in detail the activities to be performed for each of the above items.

4.1 T-56 SOIL AND SEDIMENT INVESTIGATION

The soil and sediment investigation will be conducted in compliance with TtNUS' Comprehensive Quality Assurance Plan (ComQAP), Florida Department of Environmental Protection (FDEP) Approval No. 980038, which was approved August 24, 1998 and the FDEP Standard Operating Procedures (SOPs). Four (4) surficial soil samples will be collected from the upper six inches of material using stainless steel trowels. Three (3) sediment samples will be collected using either a petite ponar dredge or stainless steel scoop. The soil and sediment sampling locations are presented in **Figure 4-1.**

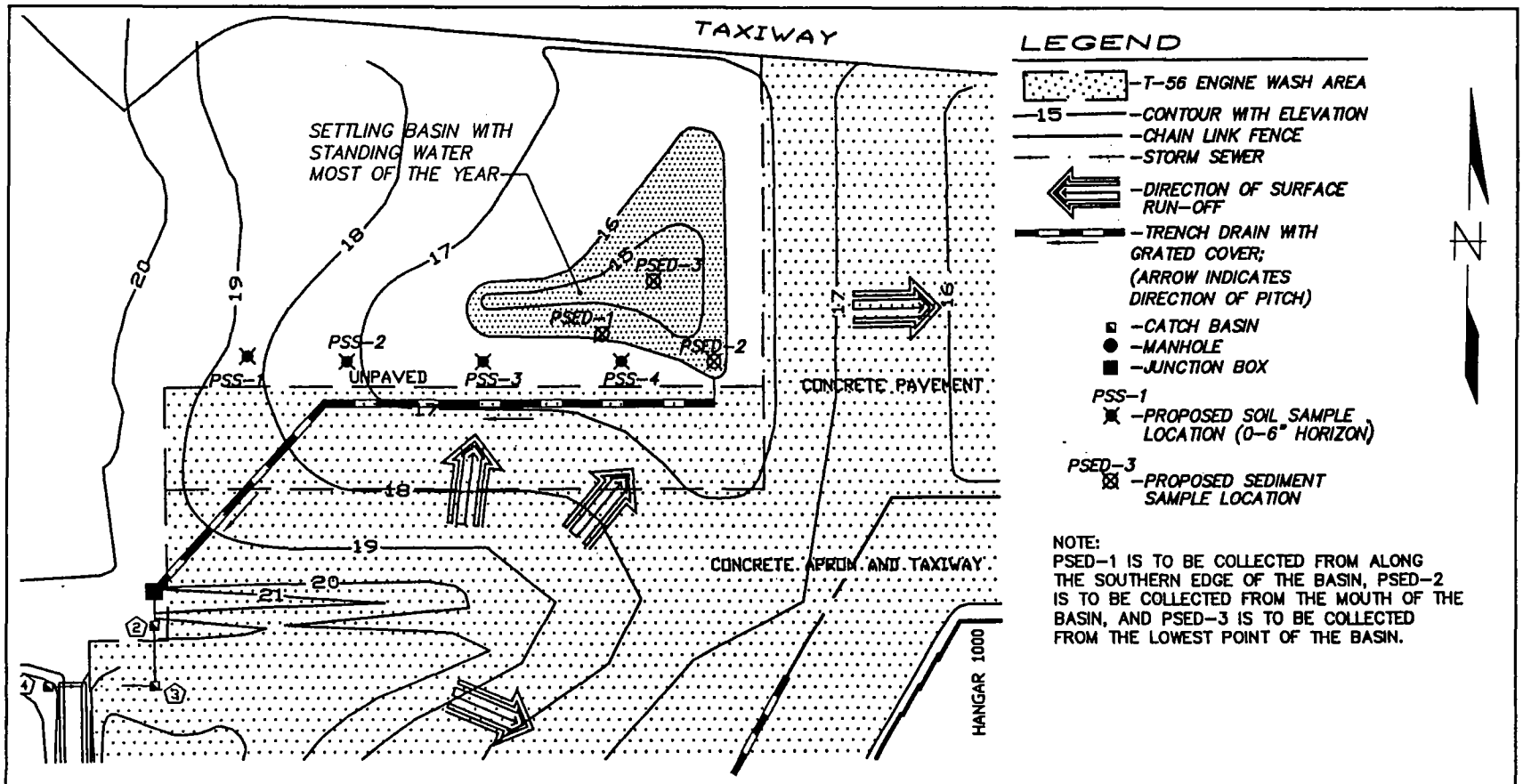
Table 4-1
Groundwater Compliance Monitoring Parameters and Standards[1]- Hangar 1000

Sampling Analysis Plan
Naval Air Station Jacksonville
Jacksonville, Florida

Volatile Organics	
Parameter	**Standard (mimimum DL) µg/L**
Acetone	700
Benzene	1
n-Butanol	700
Carbon Disulfide	700
Carbon Tetrachloride	3
Chlorobenzene	100
Cyclohexanone	35,000
1,1-Dichloroethane	70
1,2-Dichloroethane	3
1,1-Dichloroethene	7
1,2-Dichloroethene (total)	63
Ethylbenzene	700
Isobutanol	2,100
Methanol	5,000
Methylene Chloride	5
2-Nitropropane	PQL(2)
Tetrachloroethane	3
Toluene	1,000
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
Trichloroethene	3
1,1,1-Trichloro-1,2,2,-Trifluoroet	PQL(2)
Xylenes	10,000
Vinyl Chloride	1

Semi-volatile Organics	
Parameter	**Standard (mimimum DL) µg/L**
Acenaphthene	20
Benzo(a)anthracene	0.2
Benzo(a)pyrene	0.2
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	0.5
Carbazole	4
2-Chlorophenol	35
Chrysene	4.8
Dibenz(a,h)anthracene	0.2
2,4-Dinitrotoluene	0.2
Indeno(1,2,3-cd)pyrene	0.2
2-Methylphenol	35
3-Methylphenol	35
4-Methylphenol	4
Napthalene	20
4-Nitrophenol	56
N-nitroso-di-n-propylamine	4
Pentachlorophenol	1
Phenol	10
Pyridine	7
Metals	**Standard (mimimum DL) ug/L**
Parameter	
Cadmium	5
Chromium, Total	100

Notes:
1 As listed in the Application for Closure Permit, T-56 Engine Wash Area and Hangar 1000, HRP/Spectrum, September 1998, revised February 1999.
2 Neither 2-Nitropropane nor 1,1,1-Trichloro-1,2,2-Trifluoroethane has a groundwater standard listed in chapter 62-785, F.A.C. The Practical Quantitation Limit (PQL) for each parameter will



NOTE:
PSED-1 IS TO BE COLLECTED FROM ALONG THE SOUTHERN EDGE OF THE BASIN, PSED-2 IS TO BE COLLECTED FROM THE MOUTH OF THE BASIN, AND PSED-3 IS TO BE COLLECTED FROM THE LOWEST POINT OF THE BASIN.

Source: Figure T-1- Application for Closure Permit, T-56 Engine Wash Area, Hangar 1000, and Disease Vector Ecology and Control Center-Building 937, By HRP/Spectrum, September 1998

Drawn By JJ	Date 4/14/99	**Figure 4-1** **SOIL AND SEDIMENT SAMPLING LOCATIONS** **T-56 SITE** **Naval Air Station Jacksonville** **Jacksonville, Florida**	Contract No. N0195
Checked By	Date		Approved By Date
Cost/Sched-Area			Approved By Date
Scale Not to Scale			Drawing No. Figure 4-1 / Rev. 0

The soil and sediment samples will be sent to a fixed-based laboratory for totals analysis of the following parameters: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, inorganic mercury, nickel, selenium, silver, thallium, tin, vanadium and zinc. Soil samples will also be analyzed for cobalt, copper, lead, thallium and tin using Synthetic Precipitation Leaching Procedure (SPLP). The number of samples to be collected for this project are listed in **Table 4-2.** The samples will be shipped to the laboratory as required to assure that their holding times are not exceeded.

The on-site geologist will maintain a completed logbook detailing the location and other pertinent information for each sampling location as listed below.

- Sample Numbers and Types
- Sample Depths
- Soil Color
- Unified Soil Classification System (USCS) Material Description

4.2 T-56 GROUNDWATER DETECTION MONITORING

Two monitoring wells, MW-20 and MW-21, previously installed at T-56 will undergo replicate sampling on a quarterly basis to obtain statistically significant evidence of contamination as described in 40 Code of Federal Regulations (CFR) 264.99 (d). The sampling frequency protocol is based on the EPA's Interim Final Guidance titled "Statistical Analysis of Ground-water Monitoring Data at RCRA Facilities" (EPA, 1989). In the Closure Permit Application, HRP/Spectrum established the sampling interval at 14 days using the following calculations:

$V_h = (k_h * i)/N_e$

where,

- V_h is the horizontal component of the average linear velocity of the groundwater
- k_h is the horizontal component of hydraulic conductivity
- i is the head gradient, and
- N_e is the effective porosity

TABLE 4-2
SOIL/SEDIMENT AND GROUNDWATER COMPLIANCE SAMPLING
ENVIRONMENTAL SAMPLE SUMMARY (Per Quarter)

Sampling and Analysis Plan
T-56 Engine Wash Area and Hangar 1000
NAS Jacksonville, Jacksonville, Florida

Analyte	Proposed Method [1]	Env. Samples	IDW Samples	Rinsate Blanks	Trip Blanks (Aqueous)	Total Analyses
HANGAR 1000 – GROUNDWATER						
VOCs listed in **Table 4-1**	**SW-846 8260B** (Report only those compounds identified in **Table 4-1**)	9	0	1	1	11
SVOCs listed in **Table 4-1**	**SW-846 8270C** (Report only those compounds identified in **Table 4-1**)	9	0	1	0	10
RCRA Metals – Cadmium and Chromium only	**SW-846 6010B/7000A** (Report only those compounds identified in **Table 4-1**)	9/8 [2]	0	1/0 [2]	0	10/8 [2]
Nitrate, Nitrite	EPA 353.2	9	0	1	0	10
Methane	RSK SOPs 147 and 175	9	0	1	0	10
Ethane	RSK SOPs 147 and 175	9	0	1	0	10
Ethene	RSK SOPs 147 and 175	9	0	1	0	10
Chlorides	EPA 325.3	9	0	1	0	10
Sulfates	EPA 375.4	9	0	1	0	10
Sulfides	EPA 376.1	9	0	1	0	10
Appendix IX Metals	SW-846 6010B/7000A	0/1 [2]	0	0/1 [2]	0	0/2 [2]
T-56 ENGINE WASH AREA GROUNDWATER						
Appendix IX Metals	SW-846 6010B/7000A	8	0	4	0	12
T-56 ENGINE WASH AREA SOIL/SEDIMENT [3]						
Appendix IX Metals	SW-846 6010B/7000A	8	0	1	0	9
SPLP followed by analysis for cobalt, copper, lead, thallium and tin	SW-846 1312/6010B/ 7000A, followed by analysis for cobalt, copper, lead, thallium and tin	4	0	1	0	5
Total Samples Collected Per Event		**24**	**0**	**6**	**1**	**31**

[1] Method referenced reflects FDEP requirements. All analyses are analyzed using standard 30-day laboratory turn around time.

[2] During the fourth quarter event at Hangar 1000, the most contaminated monitoring well (based on the results from the first three sampling events) be analyzed for all 40 CFR 264 Appendix IX metals instead of cadmium and chromium only. The number before the "/" represents the number of analyses for the first three events and the number after the slash represents the number of analyses for the fourth event.

[3] Soil/sediment sampling will only occur during the first quarter sampling event.

From this equation HRP Spectrum calculated the horizontal component of groundwater velocity as 0.015 feet per day or 0.18 inches per day. PVC well diameters at the T-56 site are reportedly 1.5 inches. The sampling interval to ensure that an independent groundwater sample is obtained is the well diameter divided by the horizontal component of average linear velocity of groundwater, or 8.33 days. HRP/Spectrum established a minimum sampling interval of 14 days between events due to seasonal groundwater recharge rates. TtNUS will follow this FDEP-approved sampling schedule.

Each well, MW-20 and MW-21, will be sampled four (4) times each quarter on a three-day cycle as calculated above. See Figure U-3 from the Closure Permit Application contained in **Appendix A** for monitoring well locations. During each sampling event, the following field measurements will be collected from each sample: temperature, pH, turbidity, and specific conductivity. Also, depth to water and total well depth will be determined for each well prior to each sampling event. Replicate sampling (four sampling activities per event) will be performed for all wells in this program. This sampling program will consist of four (4) quarterly sampling events. The resulting groundwater samples will be analyzed for the presence of the 17 metals which appear in the RCRA Appendix IX list. Additional information (e.g., sample collection, laboratory analyses) is presented in the paragraphs that follow.

4.3 HANGAR 1000 QUARTERLY COMPLIANCE MONITORING

As detailed in the revised Closure Permit Application, the eight (8) monitoring wells (see Figure U-10 in **Appendix A** for monitoring well locations) listed below will be sampled on a quarterly basis for four (4) quarters.

- MW-2
- MW-5
- MW-8
- H1-SS-MW-16
- H1-IS-MW-17
- H1-IS-MW-18
- H1-SS-MW-19
- H1-SS-MW-22

Each well above will be sampled each quarter. During each sampling event, the following field measurements will be collected: temperature, pH, turbidity and specific conductivity. The following natural attenuation parameters will also be analyzed in the field: dissolved oxygen, ferric iron (Fe^{+2}), carbon dioxide, carbon monoxide, hydrogen sulfide, and oxygen reduction potential (ORP). This sampling program will consist of four (4) quarterly sampling events.

The resulting groundwater samples will be analyzed by an approved laboratory for the list of parameters included in **Table 4-1**, and the following natural attenuation parameters: nitrate, nitrite, methane, ethane, ethene, chlorides, sulfates, and sulfides. Additionally, during the fourth quarterly sampling event, a confirmatory sample will be collected from the point of compliance well (the well with the highest contaminant concentrations over the first three sampling events). This sample will be analyzed for the VOCs, and SVOCs in **Table 4-1** and all 40 CFR Part 264 Appendix IX metals. Additional information (e.g., sample collection, laboratory analyses) is presented in the paragraphs that follow.

4.4 GROUNDWATER SAMPLING

Groundwater samples, collected during the sampling events described in Sections 4.2 and 4.3 above, will be collected in accordance with TtNUS' Comprehensive Quality Assurance Plan (FDEP Comp QA Plan No. 980038). Prior to obtaining samples from any of the wells, water levels and total well depths will be measured and recorded. Then prior to sampling each well, it will be purged using a peristaltic pump and a low flow quiescent purging technique. Three to five well volumes will be purged. If wells are purged dry with less than three well volumes removed, the water level in the well will be allowed to recover at least 80 percent, then a sample will be collected. Field measurements of pH, temperature, specific conductance, turbidity, dissolved oxygen and oxygen reduction potential (ORP) will be taken after each volume of water is purged. If these parameters do not stabilize after three volumes, up to five volumes will be removed. After the well has stabilized, dissolved oxygen, ferric iron, carbon monoxide, carbon dioxide, and hydrogen sulfide will be analyzed in the field using the equipment listed in the Quality Assurance Project Plan (QAPP).

Before purging wells where groundwater is known or believed to be impacted by organics, a clear bailer or an oil-water interface probe will be used to check for free product. No samples will be collected from a well that exhibits measurable free product. The thickness of the free product will be measured and recorded.

Samples will be obtained using a peristaltic pump using a low flow quiescent sampling technique. The samples will be transferred directly into the appropriate (pre-preserved) sample bottles for analysis. If required, samples to be analyzed for volatile constituents shall be taken first and immediately sealed in the vial so that no headspace exists. Samples collected under this task order will be as shown in **Table 4-2.**

4.4.1 Groundwater Level Measurements

Synoptic water level measurements will be taken from only the monitoring wells at the sites that are to be sampled. Static water level measurements will be measured at the beginning of the field activities from the north rim of the top of the PVC riser pipe using an electronic water level indicator. The depth to water will be measured to the nearest 0.01 foot below the top of the PVC riser pipe. Water level measurements will be recorded to the nearest 0.01-foot in the appropriate field logbook.

4.5 EQUIPMENT DECONTAMINATION – SAMPLING EQUIPMENT

The equipment involved in field sampling activities will be decontaminated prior to and during sampling activities in accordance with TtNUS's SOP and CompQAP. All equipment such as trowels and bailers used for collecting samples will be decontaminated prior to beginning field sampling and between sample locations. The following decontamination steps will be taken:

- Tap water and Alconox or liquinox detergent rinse.
- Tap water rinse.
- If trace metals are to be sampled rinse with 10-15% reagent grade nitric acid (the nitric acid should not be used on stainless steel sampling equipment).
- Rinse thoroughly with de-ionized, analyte-free water.
- Rinse with isopropanol
- Rinse thoroughly with de-ionized, analyte-free water
- Air dry.
- Wrap equipment in aluminum foil until use.

Field meters such as pH, conductivity, and temperature instrument probes will be rinsed first with tap water, then with de-ionized, analyte-free water, and finally with the sample liquid.

4.6 WASTE HANDLING

Purge water will be collected and containerized in DOT approved (Specification 17C) 55-gallon drums. Each drum will be sealed, labeled and left at a drum staging area pending groundwater analytical results and/or composite waste sample results for disposal. A waste staging area will be established at the site to store investigation-derived waste (IDW) generated during the sampling activities. All decontamination materials generated during the site investigation will be containerized for proper disposal. The disposal of IDW will be coordinated through NAS Jacksonville environmental project manager. A copy of the Drum Logs will be submitted to the NAS Jacksonville environmental project manager at the completion of field activities.

4.7 SAMPLE HANDLING

Sample handling includes the field-related consideration concerning the selection of sample containers, preservatives, allowable holding times and analysis requested. In addition, sample identification, packaging and shipping will be addressed. Sample handling procedures will be in accordance with TtNUS's FDEP approved CompQAP No. 980038 dated August 24, 1998.

4.8 SAMPLE PACKAGING AND SHIPPING

Samples will be packaged and shipped in accordance with TtNUS' CompQAP. The field operations leader will be responsible for completion of the following forms when samples are collected for shipping:

- Sample labels
- Chain-of-Custody labels
- Appropriate labels applied to shipping coolers
- Chain-of Custody Forms
- Federal Express Air Bills

TtNUS' CompQAP addresses the topics of containers and sample preservations. A summary of bottleware requirements, preservation requirements, and sample holding times are provided in **Table 4-3.**

Table 4-3
Summary of Analysis, Bottleware Requirements, Preservation Requirements, and Holding Times
Hangar 1000 and T-56 Engine Wash Area, NAS Jacksonville, Jacksonville, Florida

Parameter	Analytical Method	Sample Container	Volume (2)	Preservation	Maximum Holding Time (1)
Aqueous Samples					
Appendix IX VOA	SW-846 8260B	Glass, with Teflon-lined cap	3 – 40 ml vials	HCL, Ice (4 degrees C)	14 days to analysis (aqueous); 48 hours until preservation/extraction by the laboratory; 14 days to analysis
Appendix IX SVOA	SW-846 8270C	Glass, with Teflon-lined cap	1 liter	Ice (4 degrees C)	7 days to extraction (aqueous) or 14 days to extraction (solid); 40 days from extraction to analysis
Appendix IX Metals	SW-846 6010B/7000A	Plastic	1 liter	HNO3, Ice (4 degrees C)	180 days, except mercury which is 28 days to analysis
Soil/Sediment Samples					
Appendix IX Metals	SW-846 6010B/7000A	Glass	8 oz.	Ice (4 degrees C)	180 days, except mercury which is 28 days to analysis

SVOAs – Semi-volatile Organic Aromatics
VOAs - Volatile Organic Aromatics
MTBE - Methyl-tert-butyl-ether
PAHs - Polynuclear Aromatic Hydrocarbons
TRPH - Total Recoverable Petroleum Hydrocarbons

HNO3 – Nitric Acid
HCL - Hydrochloric acid
H2SO4 - Sulfuric acid
(1) - Holding time measured from date of sample collection to date of sample analysis.
(2) - Laboratories might specify specific volume requirements.

Reference: 40CFR, Part 136 Table II

4.9 SAMPLE IDENTIFICATION

Each sample collected will be assigned a unique sample tracking number. The sample tracking number will consist of a three-segment, alphanumeric code that identifies the site designation, location, the sampling event identifier or sample depth (in case of soil samples) and the QC designation, if applicable. Any other pertinent information regarding sample identification will be recorded in the field logbook. The alphanumeric coding to be used in the sample system is explained below:

Sample Identifier:

Site designation – location – other identifier

(Do not use dashes (-) in identifier. They are used here for illustration purposes only.)

Where

Site Designation = either T56 (for T-56 site) or H10 (for Hangar 1000 site)

Location = either a monitor well identifier (e.g., MW2), or soil/sediment sample location identifier (e.g., PSS1, S&W1). This character string will either be three or four digits in length.

Note: Surface soil/sediment sample locations will be the sample location number presented on ***Figure 4-1*** *(i.e., PSS2, S&W1).*

Other identifier = for quarterly groundwater monitoring events use the quarterly sampling event number (e.g., 01, 02), and for soil/sediment samples use 01. If the sample is part of the replicate sampling for T-56, add a letter a through d to the end of this item to designate which sample it is, where "a" represents the first replicate sample, "b" represents the second replicate sample, etc.

Note: For quality assurance duplicate samples add the letter "D" to the end of the "other identifier" to designate duplicate.

For example, the first quarter, second replicate groundwater sample collected from monitoring well MW-21 at the T-56 Site would be designated as T56MW2101b.

A duplicate sample from the third quarter event at monitoring well MW-2 at Hangar 1000 would be H10 MW20 03D.

A surface soil sample taken from location PSS-2 at T-56 would be T56 PSS2 01.

A sediment sample taken from location S&W-1 at T-56 would be T56S&W101.

For other quality assurance (QA) samples, use a character string, which includes the site name, and an alpha numeric identifier which details the number of the type of sample and the type of sample separated by a dash (-). See below for some examples.

Field Blank (F) Example:

The first field blank (F) from the Hangar 1000 site would be H1000-01F.

Rinsate Blank (B) Example:

The first equipment rinsate blank (B) from the T-56 site would be T56-01B.

Trip Blank (T) Example:

The first trip blank (T) from the Hangar 1000 site would be H1000-01T.

Information regarding sample labels to be attached before shipment to a laboratory is contained in SOP SA-6.3 included in **Appendix B**. Examples of sample labels, chain of custody seals, and chain-of-custody forms are included in **Appendix B**.

4.10 SAMPLE CUSTODY

The chain-of-custody begins with the release of the sample bottles from the laboratory and must be documented and maintained from that point forward. To maintain custody of the sample bottles or samples, they must be in someone's physical possession, in a locked room or vehicle, or sealed with an intact custody seal. When the possession of the bottles or samples is transferred from one person to another it will be documented on the field logbook and on the chain-of-custody.

4.11 QUALITY CONTROL (QC) SAMPLES

In addition to periodic calibration of field equipment and appropriate documentation, quality control samples will be collected or generated during environmental sampling activities. Quality control samples may include field blanks, field duplicates, field replicates, and trip blanks. Each type of field quality control sample is defined as follows:

Rinsate Blank - Rinsate blanks are obtained under representative field conditions by running organic free water through sample collection equipment (bailer, split-spoon, etc.) after

decontamination and placing it in the appropriate containers for analysis. Rinsate blanks will be used to assess the effectiveness of decontamination procedures. If necessary, rinsate blanks may be collected for each type of non-dedicated sampling equipment used and will be submitted as shown in **Table 4-2.**

Field Duplicate - Field duplicate(s) are two water samples collected independently at a sample location during a single act of sampling under representative field conditions. Field duplicates sample frequencies are provided in **Table 4-4.** If necessary, the duplicates shall be analyzed for the same parameters in the laboratory as indicated in **Table 4-2.**

Trip Blanks - Trip blank(s) will be prepared at the laboratory facility and will accompany the VOA vials to the sampling site and back to the laboratory. Trip blanks are not required by the FDEP unless 10 or more volatiles samples are collected during a given sampling event. Trip blank sample frequency is provided in **Table 4-4.**

TABLE 4-4
QUALITY CONTROL SAMPLE FREQUENCY

HANGAR 1000 and T-56 SITE
NAS JACKSONVILLE, JACKSONVILLE, FLORIDA

No. Samples	Precleaned Equipment Blank	Field cleaned Equipment Blank	Trip Blank(VOCs)	Duplicate
10 or more	minimum of one then 5%	Minimum of One then 5%	One per cooler	Minimum one then 10%
5 to 9	one*	one*	NR	one
Less than 5	one*	one*	NR	NR

NR = Not required

* Note: For 9 or fewer samples, a precleaned equipment blank or a field cleaned equipment blank is required. A field-cleaned equipment blank must be collected if equipment is cleaned in the field.

4.12 FIELD MEASUREMENTS

Certain field measurements will be recorded during sampling activities including groundwater temperature, pH, specific conductance, dissolved oxygen, ferric iron, carbon dioxide, carbon monoxide, hydrogen sulfide, ORP and turbidity. Instruments used in the field to record this data and additional instruments will be calibrated according to the procedures described below.

4.12.1 Parameters

The following equipment or an appropriate equivalent will be used to collect the associated field measurements.

- Air monitoring – OVA
- Temperature - Temperature probe
- Specific conductance - Specific conductance meter
- pH - pH meter
- Turbidity - Turbidity meter
- Depth to water table - interface probe
- Dissolved oxygen – Horiba U10 (during development), Chemetrics chemets (titration method)
- Ferric iron /Ferrous Iron-Hach IR-18C

- Carbon dioxide – CHEMetrics; K-1910, 20, 25; Titrets Titration Ampules/Sodium Hydroxide, Phenolphthalein
- Carbon monoxide-
- Hydrogen sulfide – HACH HS-C, Color Chart/Effervescence of H_2S
- ORP

4.12.2 Equipment Calibration

The electronic water-level indicator will be calibrated prior to mobilization and periodically at the discretion of the Field Operations Leader. The remaining instruments will be calibrated daily and/or according to the manufacturer's operation manual.

Calibration will be documented on an Equipment Calibration Log as shown in **Appendix B.** During calibration, an appropriate maintenance check will be performed on each piece of equipment. If damaged or defective parts are identified during the maintenance check and it is determined that the damage could have an impact on the instrument's performance, the instrument will be removed from service until defective parts are repaired or replaced.

4.12.3 Equipment Maintenance

Measuring equipment used in environmental monitoring or analysis and test equipment used for calibration and maintenance shall be controlled by established procedures. Measuring equipment shall have an initial calibration and shall be recalibrated at scheduled intervals against certified standards.

TtNUS maintains a large inventory of sampling and measurement equipment. In the event that failed equipment cannot be repaired; replacement equipment can be shipped to the site by overnight express carrier to minimize downtime.

4.13 RECORD KEEPING

In addition to chain-of-custody records associated with sample handling and packaging and shipping, certain standard forms will be completed for sample description and documentation. These shall include sample log sheets (for soil and groundwater samples), daily activities record and logbooks. An example of these forms can be found in **Appendix B.**

A bound/weatherproof field notebook shall be maintained by each sampling event leader. The field team leader or designee, shall record all information related to sampling or field activities.

This information may include sampling time, weather conditions, unusual events (e.g., well tampering), field measurements, descriptions of photographs, etc.

A site logbook shall be maintained by the Field Operations Leader. The requirements of the logbook are referenced in **Appendix B**. This book will contain a summary of the day's activities and will reference the field notebooks when applicable.

At the completion of field activities, the Field Operations Leader shall submit to the TtNUS Project Manager all field records, data, field notebooks, logbooks, chain-of-custody receipts, sample log sheets, drilling logs, daily logs, etc. The TtNUS project manager shall submit copies of the drum logs to the NAX Jacksonville environmental project manager.

4.14 SITE MANAGEMENT AND BASE SUPPORT

TtNUS will perform this project with support from the Navy. This section of the SAP describes the project contacts, support personnel, project milestones and time frames of all major events.

Throughout the duration of the investigation activities, work at Naval Air Station Jacksonville (NAS JAX) will be coordinated through SouthDiv and NAS JAX personnel. The primary contacts are as follows:

1. SouthDiv Engineer in Charge
   Mr. Maxie Kiesler
   (843) 820-7322

2. NAS JAX Facilities
   Ms. Jane Beason
   (904) 542-2717 ext. 139

TtNUS assumes that NAS JAX personnel will provide all historical data, background geological and hydrogeological information, and initial site investigation documents, as required.

NAS JAX personnel will aid in arranging the following:

- Personnel identification badges, vehicle passes, and/or entry permits.
- A secure staging area (approximately 200 square feet) for storing equipment and supplies.

- A supply (e.g., outside faucet, etc.) of potable water for equipment cleaning etc.
- As required, provide escorts for contract personnel working in secured areas.
- Establish a decontamination area and waste staging area located adjacent to or near the study area.

The project will be staffed with personnel from the TtNUS' Jacksonville, Florida office. During field activities, TtNUS will provide a staff geologist and equipment technician(s).

Mr. Gregory S. Roof, P. E., is the Task Order Manager (TOM) for CTO 0095 and will be the primary point of contact. He is responsible for cost and schedule control as well as technical performance. Mr. Roof will serve as the TOM and will provide senior level review and oversight during field activities. Mr. Roof will be the primary point of contact for the Field Operations Leader.

4.14.1 Contingency Plan

In the event the sampling team encounters problems during site activities, the SouthDiv point of contact will be notified immediately, followed by the TtNUS project manager and the NAS JAX point of contact. The TtNUS project manger will determine a course of action that will eliminate or minimize interference with the schedule or budget, and communicate this course of action to SouthDiv and NAS JAX personnel. All contingency plans will be approved through the SouthDiv point of contact before being enacted.

5.0 PROPOSED LABORATORY ANALYSIS

Groundwater, sediment and soil samples collected for laboratory analyses will be analyzed in accordance with parameters as identified in the Closure Permit Application.

5.1 SOIL AND SEDIMENT SAMPLING

Four (4) soil and three (3) sediment samples will be collected and analyzed for constituents in the 40 CFR 264 Appendix IX metals in accordance with the Closure Permit Application. In addition, the soil sampled will be analyzed for cobalt, copper, lead, thallium, and tin using synthetic precipitation leaching procedure.

5.2 GROUNDWATER SAMPLING

Groundwater samples will be collected from permanent monitoring wells that were previously installed near both Hangar 1000 and T-56. Groundwater samples associated with T-56 will be analyzed for 40 CFR 264 Appendix IX metals via SW-846 6010B/7000A in accordance with the Closure Permit Application. Groundwater samples associated with Hangar 1000 will be analyzed for the parameters listed in **Table 4-1** and the following natural attenuation parameters: nitrate, nitrite, methane, ethane, ethene, chlorides, sulfates, and sufides. One sample collected during the fourth sampling event from the point of compliance well will be analyzed for the parameters listed in **Table 4-1** and the natural attenuation parameters. As well as the remaining 40 CFR 264 Appendix IX metals.

A groundwater environmental sampling summary and a summary of Investigative Derived Waste (IDW) sample parameters are summarized in **Table 4-1.**

5.3 LABORATORY DATA PACKAGES AND DATA VALIDATION

The contract laboratory for this task order will supply results of the requested analyses in a format in accordance with the "Navy Installation Restoration Laboratory Quality Assurance Guide", (NFESC Interim Guidance Document, and dated February 1996) and will include the elements identified in Attachment D. Upon receipt of analytical results from the laboratory, a Tetra Tech chemist will perform a qualitative review for quality assurance.

6.0 PROPOSED SCHEDULE

The field activities for the first sampling event are proposed to begin in April 1999 and take approximately 45 days to complete. The first quarterly report, which will include the data from the soil and sediment sampling, will be developed with the completion of the field activities and receipt of laboratory data and submitted to the Navy for review within approximately 100 days of the completion of the field activities. Subsequent quarterly sampling activities will begin at approximately three month intervals, and will follow a similar schedule.

7.0 REPORTS

Eight (8) submittals are required for this task order, one per quarterly sampling event for each site (Hangar 1000 and T-56). The laboratory results of the soil and sediment sampling will be submitted under a cover letter. A detailed description of field procedures, sampling results, conclusions and recommendations will be included with the first report of quarterly monitoring for T-56. The remaining three (3) quarterly reports for T-56 will include only quarterly sampling information. During each quarterly sampling period, and after completion of all fieldwork and receipt of laboratory analysis results, a report summarizing the results of the monitoring event will be submitted to the Navy separately for each site. Basic information including the site Facility Identification Number, facility name and address, and sampling procedures will be included in these reports. Also included in these reports will be graphical presentations of the groundwater screening results, and complete summaries of the soil (as required) and groundwater analytical results. The locations of the soil samples and monitoring wells will be presented on figures. Chain-of-custody forms, field forms, and analytical reports will be included in Appendices of the report.

8.0 REFERENCES

Florida Department of Environmental Protection, July 15, 1998. New Soil Sampling Procedures and Recommended EPA Analytical Methods (per changes to USEPA SW-846) and Other Quality Assurance Issues for the Division of Waste Management.

Tetra Tech NUS, Inc., 1998 Revision. Comprehensive Quality Assurance Plan, FDEP COMP QA PLAN # 980038.

EPA, April 1989. EPA's guidance on "Statistic Analysis of Ground-water Monitoring Data at RCRA Facilities".

40 Code of Federal Regulations (CFR), Part 264 Appendix IX.

ABB Environmental Services, Inc., December 1993. Groundwater Monitoring Plan, Hangar 1000 Tank System.

HRP/Spectrum, September 1998 revised February 1999. Application for Closure Permit, T-56 Engine Wash Area, Hangar 1000, and Disease Vector Ecology and Control Center – Building 937, for Naval Air Station Jacksonville.

APPENDIX A

Figures U-3 and U-10 from the Application for Closure Permit, T-56 Engine Wash Area and Hangar 1000, HRP/SPECTRUM, September 1998, revised February 1999

1" = 20'-0"

20 0 10 20 40

APPROXIMATE SCALE IN FEET
CHECK GRAPHIC SCALES
BEFORE USING

GRID N

BENZENE 52.0
1,1-DICHLOROETHENE 52.0
TRICHLOROETHENE 52.0

H1-SS-MW-10

H1-DS-MW-11

H1-PB-32

1,1-DICHLOROETHENE 7.3

H1-PB-26

H1-PB-30

H1-PB-21

H1-PB-23

TANK A

WASH RACK MANHOLE TO TANK A

TRICHLOROETHENE 26.0

H1-SS-MW-7

FLOOR DRAIN

4-METHYLPHENOL 56.0
NAPHTHALENE 130.0
1,2-DICHLOROETHENE (TOTAL) 5000.0
1,1,1-TRICHLOROETHANE 3600.0
1,1-DICHLOROETHANE 630.0
1,1-DICHLOROETHENE 2500.0
TRICHLOROETHENE 2200.0
TOLUENE 1700.0
CHLOROBENZENE 1500.0
BENZENE 1800.0

H1-SS-MW-8

H1-SS-MW-1

TRICHLOROETHENE 53.0

B

B'

H1-PB-29

H1-PB-31

1,1-DICHLOROETHENE 11.0

DISCHARGE PIPE FROM TANK A TO TANK B

"MYSTERY PIPE" (~230' TOTAL LENGTH)

FLOOR DRAIN

FLOOR DRAINS

H1-SS-MW-6

1,1-DICHLOROETHENE 18.0
TRICHLOROETHENE 80.0

TANK B

H1-SS-MW-2

H1-DS-MW-9

FLOOR DRAINS

1,1-DICHLOROETHENE 85.0
2,4-DINITROTOLUENE 71.0
2-CHLOROPHENOL 58.0
2-CHLORO-3-METHYLPHENOL 74.0
4-NITROPHENOL 83.0
ACENAPHTHENE 77.0
BENZENE 25.0
BENZO(A)ANTHRACENE 70.0
BENZO(A)PYRENE 70.0
BENZO(B)FLUORANTHENE 69.0
BENZO(K)FLUORANTHENE 66.0
CHRYSENE 86.0
DIBENZO(A,H)ANTHRACENE 79.0
INDENO(1,2,3-CD)PYRENE 82.0
NAPHTHALENE 74.0
N-NITROSODI-N-PROPYLAMINE 63.0
PENTACHLOROPHENOL 69.0
PHENOL 57.0
TRICHLOROETHENE 79.0

H1-SS-MW-5

C

C'

1,1-DICHLOROETHENE 8.0

H1-SS-MW-15

H1-PB-24

H1-PB-38

1,1-DICHLOROETHENE 10.0
TRICHLOROETHENE 45.0

H1-SS-MW-12

CARBON TET 45.0
1,1,1-TRICHLOROETHANE 500.0
1,1-DICHLOROETHANE 260.0
1,1-DICHLOROETHENE 420.0
TRICHLOROETHENE 96.0

H1-SS-MW-3

H1-SS-MW-14

1,1-DICHLOROETHANE 290.0
1,1-DICHLOROETHENE 470.0
TRICHLOROETHENE 50.0

H1-SS-MW-22

PHENOL 85.0
2,4-DINITROTOLUENE 71.0
4-CHLORO-3-METHYLPHENOL 100.0
N-NITROSODI-N-PROPYLAMINE 53.0
ACENAPHTHENE 58.0
PENTACHLOROPHENOL 130.0
2-CHLOROPHENOL 87.0
4-NITROPHENOL 120.0

H1-SS-MW-13

H1-PB-25

TETRACHLOROETHENE 35.0
TRICHLOROETHENE 15.6

H1-IS-MW-18

H1-PB-27

1,1-DICHLOROETHENE 59.0
TRICHLOROETHENE 40.0

H1-PB-28

VINYL CHLORIDE 1.7
1,1-DICHLOROETHENE 990.0
1,1-DICHLOROETHANE 590.0
C-1,2-DICHLOROETHENE 2200.0
TRICHLOROETHENE 550.0
TETRACHLOROETHENE 17.0
NAPHTHALENE 56.0

H1-PB-37

1,1-DICHLOROETHANE 110.0
TETRACHLOROETHENE 8.0

H1-PB-33

H1-SS-MW-16

H1-IS-MW-17

H1-PB-36

H1-PB-34

H1-SS-MW-19

L:\DWG\HRP186FE\FIG-U-3

LEGEND

- [ ] - HAZARDOUS WASTE STORAGE TANK SYSTEM
- H1-DS-MW-11 ⊕ - DEEP MONITORING WELL
- H1-SS-MW-2 ⊕ - SHALLOW MONITORING WELL
- H1-PB-22 ⊕ - DPT GROUND WATER SAMPLE LOCATION (7/98 & 8/98)
- A A' - CROSS SECTIONS

YORKTOWN AVENUE

NOTE: COMPOUNDS LISTED WERE DETECTED ABOVE THEIR RESPECTIVE MCL'S. RESULTS ARE IN UG/L.

REVISIONS

NO.	DATE	DESCRIPTION
1	2/99	ADD CROSS SECTIONS, 5 NEW WELLS

GROUNDWATER CONTAMINATION IN SHALLOW AQUIFER-SUMMER 1998 SAMPLES

NAVAL AIR STATION - JACKSONVILLE HANGAR 1000 SITE

JACKSONVILLE, FLORIDA

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

C.R.S. DESIGNED	R.D.M. APPROVED	1" = 20' SCALE	
B.O.B. DRAWN	SEPT., 1998 DATE		FIG. U-3
C.R.S. CHECKED	HRP0186.FE PROJECT NO.		SHEET NO.

L:\DWG\HRP186FE\FIG-U-3.DWG Thu Feb 11 15:43:25 1999

TAXIWAY

TAXIWAY

TAXIWAY

SETTLING BASIN WITH STANDING WATER MOST OF THE YEAR

UNPAVED

CONCRETE PAVEMENT

CONCRETE APRON AND TAXIWAY

CONCRETE PAVEMENT

CONCRETE PAVEMENT

HANGAR 1000

FIRE PUMP HOUSE

GUARD STATION

H1-SS-MW-21

H1-SS-MW-20

YORKTOWN AVENUE

5'x10'x110' U/G BOX CULVERT

North

LEGEND

- T-56 ENGINE WASH AREA
- 15 — CONTOUR WITH ELEVATION
- ⊕ H1-SS-MW-20 — MONITORING WELL LOCATION (MICROWELL)
- CHAIN LINK FENCE
- STORM SEWER
- DIRECTION OF SURFACE RUN-OFF
- TRENCH DRAIN WITH GRATED COVER; (ARROW INDICATES DIRECTION OF PITCH)
- CATCH BASIN
- MANHOLE
- JUNCTION BOX
- (5) NUMBERED STORMWATER CONVEYANCE STRUCTURE

HRP186FE\U-10 (B)

MONITORING WELL LOCATIONS

NAVAL AIR STATION - JACKSONVILLE

T-56 ENGINE WASH AREA
JACKSONVILLE, FLORIDA

REVISIONS		
NO.	DATE	DESCRIPTION
1	2/99	Well Installations completed

HRP ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

C.R.S. DESIGNED	R.D.M. APPROVED	1" = 100' SCALE	
B.O.B. DRAWN	AUGUST, 1998 DATE		FIG. U-10 SHEET NO.
C.R.S. CHECKED	HRP0186.FE PROJECT NO.		

APPENDIX B

SOPs

TETRA TECH'S STANDARD OPERATING PROCEDURES (SOPs) ARE CONTAINED IN A STAND ALONE DOCUMENT, MAINTAINED IN EACH FIELD VEHICLE AND WILL AVAILABLE TO FIELD PERSONNEL DURING EACH SAMPLING EVENT.